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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,866	07/03/2003	Chikako Sekiya	239820US2	3854

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EXAMINER	
CROWELL, ANNA M	
ART UNIT	**PAPER NUMBER**
1763	

NOTIFICATION DATE	DELIVERY MODE
06/15/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/611,866	SEKIYA, CHIKAKO	
	Examiner	Art Unit	
	Michelle Crowell	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 12-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 27, 2007 has been entered.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, 6-8, 11-15, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda et al. (U.S. 2001/0015175) in view of Herchen et al. (U.S. 6,264,852) and Koshiishi et al. (U.S. 5,919,332).

Referring to Figures 1, 2, and 9, paragraphs [0059]-[0076], Masuda et al. discloses a plasma treatment apparatus and a upper electrode cover for a plasma treatment apparatus comprising: a vacuum vessel 100 that houses an article W to be plasma-treated in a plasma region (par. [0061]); a lower electrode 130 that is provided inside the vacuum vessel and onto which is placed the article to be plasma-treated (par. [0065]); an upper electrode main body 111 is provided above the lower electrode to form the plasma region in the vacuum vessel, the upper

electrode main body having formed therein an opening through which passes light for detecting an extent of progress of plasma treatment of the article to be treated in the plasma region (par.[0063], Fig. 2); an upper electrode cover 115 that is joined to a lower surface of the upper electrode main body and faces the plasma region, the upper electrode cover having formed therein a hole at a location corresponding to the opening of the upper electrode main body (par.[0063], Fig. 2); and a transparent window member 115C that is made of a transparent member which is a separate body to the upper electrode cover, has a shape insertable into the hole of the upper electrode cover 115, and is retainably and upwardly removably fitted in the hole of the upper electrode cover (par.[0063]-[0064], Fig. 9), wherein the transparent window member 115C is disposed to face the plasma region and has a part through which the light for detecting an extent of progress of plasma treatment passes (Fig. 9)

Masuda et al. fails to teach that a transparent window member comprising a solid piece having no through hole through which gas passes.

Referring to column 7, line 54-column 9, line 25, Herchen et al. teaches a plasma treatment apparatus wherein a transparent window member 170 comprising a solid piece and having no through hole through which gas passes. Referring to Figures 4-7 and column 14, lines 7-27, Koshiishi et al. teaches a plasma treatment apparatus wherein a transparent window member 31b comprising a solid piece and having no through hole through which gas passes is used to monitor plasma. In addition, Koshiishi et al. teaches a plasma treatment apparatus wherein a transparent window member 31c comprising a through hole is used to monitor plasma. Therefore, Koshiishi et al. teaches that it is conventionally known in the art that a transparent window member comprising a solid piece having no through hole is an alternate and equivalent

structure to a transparent window member with a through hole since both function the same to transmit light and monitor the progress of the plasma. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transparent window member of Masuda et al. to have a solid piece having no through hole through which gas passes as taught by Herchen et al. and Koshiishi et al. since it is an alternate and equivalent structure which functions the same to transmit light and monitor the progress of the plasma.

With respect to claim 3, an upper electrode cover further includes that the hole has a lower portion having a reduced diameter and an upper portion having an increased diameter (Fig. 9, shape of 115C).

With respect to claim 4, an upper electrode cover further includes wherein the hole opens into the plasma region (Fig. 9).

With respect to claim 6, referring to Figures 1, 2, and 9, paragraphs [0059]-[0076], Masuda et al. discloses an upper electrode cover window member for a plasma treatment apparatus comprising: a vacuum vessel 100 that houses an article W to be plasma-treated in a plasma region (par. [0061]); a lower electrode 130 that is provided inside the vacuum vessel and onto which is placed the article to be plasma-treated (par. [0065]); an upper electrode main body 111 that is provided above the lower electrode to form the plasma region in the vacuum vessel, the upper electrode main body having formed therein an opening through which passes light for detecting an extent of progress of plasma treatment of the article to be treated in the plasma region (par.[0063], Fig. 2); an upper electrode cover 115 that is joined to a lower surface of the upper electrode main body and faces the plasma region, the upper electrode cover having formed therein a hole at a location corresponding to the opening of the upper electrode main body

(par.[0063], Fig. 2); wherein a window member 115C that is made of a transparent member which is a separate body to the upper electrode cover, has a shape insertable into the hole of the upper electrode cover 115, and is retainably and upwardly removably fitted in the hole of the upper electrode cover (par.[0063]-[0064], Fig. 9); and the window member has at least in part a shape complementary to a shape of the hole of the upper electrode cover (Fig. 9), wherein the transparent window member 115C is disposed to face the plasma region and has a part through which the light for detecting an extent of progress of plasma treatment passes (Fig. 9).

Masuda et al. fails to teach that a transparent window member comprising a solid piece having no through hole through which gas passes.

Referring to column 7, line 54-column 9, line 25, Herchen et al. teaches a plasma treatment apparatus wherein a transparent window member 170 comprising a solid piece and having no through hole through which gas passes. Referring to Figures 4-7 and column 14, lines 7-27, Koshiishi et al. teaches a plasma treatment apparatus wherein a transparent window member 31b comprising a solid piece and having no through hole through which gas passes is used to monitor plasma. In addition, Koshiishi et al. teaches a plasma treatment apparatus wherein a transparent window member 31c comprising a through hole is used to monitor plasma. Therefore, Koshiishi et al. teaches that it is conventionally known in the art that a transparent window member comprising a solid piece having no through hole is an alternate and equivalent structure to a transparent window member with a through hole since both function the same to transmit light and monitor the progress of the plasma. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transparent window member of Masuda et al. to have a solid piece having no through hole through which gas passes as taught

by Herchen et al. and Koshiishi et al. since it is an alternate and equivalent structure which functions the same to transmit light and monitor the progress of the plasma.

With respect to claim 7, an upper electrode cover window member further includes wherein the hole has a lower portion having a reduced diameter and an upper portion having an increased diameter, and the upper electrode cover window member 115C has a lower portion having a reduced diameter and an upper portion having an increased diameter that can be fitted in the lower portion and upper portion of the hole, respectively (Fig. 9, shape of 115C).

With respect to claim 8, Masuda et al. fails to teach the upper electrode cover window member having a lower portion having a reduced diameter, an intermediate portion having an increased diameter, and an upper portion having a reduced diameter; however, the shape of the upper electrode cover window member is considered a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular shape of the upper electrode cover window member was significant (In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)).

With respect to claim 11, a plasma treatment apparatus further comprising a lower electrode 130 that is provided inside the vacuum vessel 100 and onto which is placed the article W to be plasma-treated, and wherein the upper electrode main body 111 is provided above the lower electrode (par. [0061], [0065], Fig. 1).

With respect to claim 12, a plasma treatment apparatus further comprising: a tubular member 141 that is provided in the vacuum vessel 100 with a lower end thereof inserted in the opening of the upper electrode main body 111, the tubular member having formed therein an

inner hole 144 (par.[0073]-[0074]); and a sensor 152 that detects intensity of light for detecting the extent of progress of the plasma treatment of the article to be plasma-treated, and wherein the light passes through the opening of the upper electrode main body, the inner hole of the tubular member, and the window member (pars. [0067],[0074], [0092]-[0093], Figs. 2 & 7).

With respect to claim 13, a plasma treatment apparatus wherein the sensor detects 152 changes in intensity of light reflected by the article to be plasma-treated, the reflected light from the article to be plasma-treated passing through the window member, the inner hole of the tubular member, and the opening of the upper electrode main body (pars. [0067], [0074], [0092]-[0093], Figs. 2 & 7).

With respect to claim 14, a plasma treatment apparatus as claimed in claim 13, wherein the sensor 152 emits light through the opening of the upper electrode main body, the inner hole of the tubular member, and the window member into the vacuum vessel (pars. [0067], [0074], [0092]-[0093], Figs. 2 & 7).

With respect to claim 15, referring to Figure 2, Masuda discloses a plasma treatment apparatus wherein the window member (portion of 115 with 115B) is in contact with a lower surface of the tubular member 141 (Fig. 2). Alternatively, as shown in other embodiments, it would have been obvious to one of ordinary skill in the art at the time of the invention for the window member 115C of Figure 9 to be in contact with the lower surface of the tubular member 141 in order to further reduce the optical transmission path.

With respect to claim 17, a plasma treatment apparatus wherein the opening of the upper electrode main body 111 has a shape different from the shape of the hole of the upper electrode cover 115C (Fig. 9).

With respect to claim 18, a plasma treatment apparatus wherein the inner hole of the tubular member 141 has a shape different from the shape of the hole of the upper electrode cover 115C (Fig 9).

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda et al. (U.S. 2001/0015175) in view of Herchen et al. (U.S. 6,264,852) and Koshiishi et al. (U.S. 5,919,332) as applied to claims 1-4, 6-8, 11-15, and 17-18 above, and further in view of Ueda et al. (J.P. 08107102).

The teachings of Masuda et al. in view of Herchen et al. and Koshiishi et al. have been discussed above.

Masuda et al. in view of Herchen et al. and Koshiishi et al. fail to teach that the upper electrode cover is made of quartz.

Referring to the abstract, Ueda et al. teaches that it is conventionally known in the art for the upper electrode cover 14 to be made of quartz in order to reduce particle contamination. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for the upper electrode cover of Masuda et al. in view of Herchen et al. and Koshiishi et al. to be made of quartz as taught by Ueda et al. in order to reduce particle contamination.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda et al. (U.S. 2001/0015175) in view of Herchen et al. (U.S. 6,264,852) and Koshiishi et al. (U.S. 5,919,332) as applied to claims 1-4, 6-8, 11-15, and 17-18 above, and further in view of Okawa et al. (J.P. 2000349070).

US 6,758,941 is used as the English translation for (JP 2000349070).

The teachings of Masuda et al. in view of Herchen et al. and Koshiishi et al. have been discussed above.

Masuda et al. in view of Herchen et al. and Koshiishi et al. fail to teach that the upper electrode cover window member is made of quartz.

Referring to column 5, lines 16-22, Okawa et al. teaches the upper electrode cover window member 4C is made of quartz since it is a known transparent material used for plasma monitoring and sapphire is highly resistant to plasma. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for the material of the upper electrode cover window member of Masuda et al. in view of Herchen et al. and Koshiishi et al. to be made of sapphire as taught by Okawa et al. since it is a known transparent material used for plasma monitoring and sapphire is highly resistant to plasma.

5. Claims 10 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda et al. (U.S. 2001/0015175) in view of Herchen et al. (U.S. 6,264,852) and Koshiishi et al. (U.S. 5,919,332) as applied to claims 1-4, 6-8, 11-15, and 17-18 above, and further in view of Howald et al. (U.S. 6,074,516).

The teachings of Masuda et al. in view of Herchen et al. and Koshiishi et al. have been discussed above.

Masuda et al. in view of Herchen et al. and Koshiishi et al. fail to teach that the upper electrode cover window member is made of sapphire.

Referring to column 5, lines 17-30, Howald et al. teaches the upper electrode cover window member 302 is made of sapphire since it is a known transparent material used for plasma monitoring and sapphire is highly resistant to plasma. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for the material of the upper electrode cover window member of Masuda et al. in view of Herchen et al. and Koshiishi et al. to be made of sapphire as taught by Howald et al. since it is a known transparent material used for plasma monitoring and sapphire is highly resistant to plasma.

Masuda et al. fail to teach affixing the window member to the upper electrode cover using tape.

Referring to column 6, lines 59-64, Howald et al. teaches affixing the window member to the upper electrode cover using an adhesive. It is conventionally known in the art that tape is an adhesive. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply tape to upper electrode cover of Masuda in view of Herchen et al. and Koshiishi et al. to affix the window member to the upper electrode cover as taught by Masuda et al. since tape is a conventionally known material used to affix a window member.

Response to Arguments

6. Applicant's arguments with respect to claims 1-10 and 12-18 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Crowell whose telephone number is (571) 272-1432. The examiner can normally be reached on M-F (9:30 -6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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